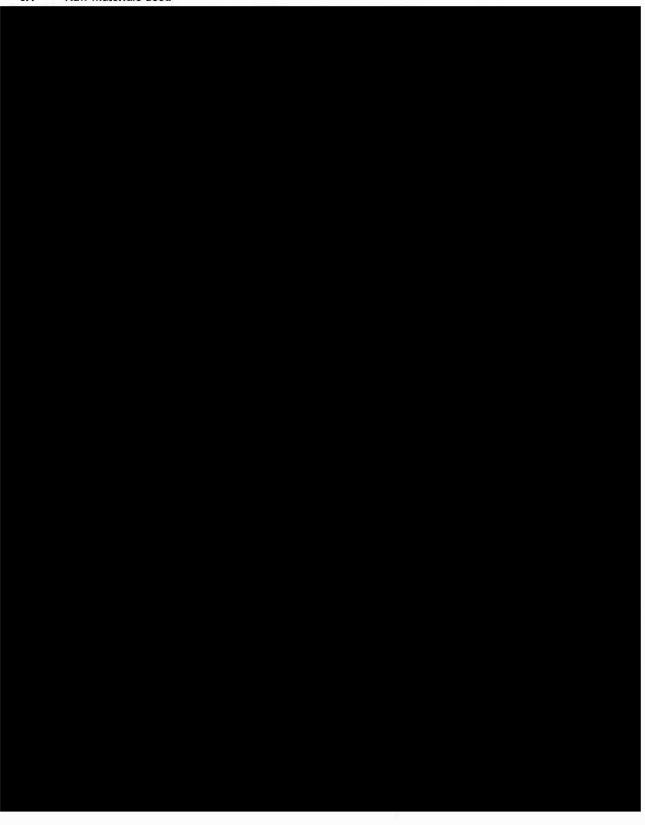
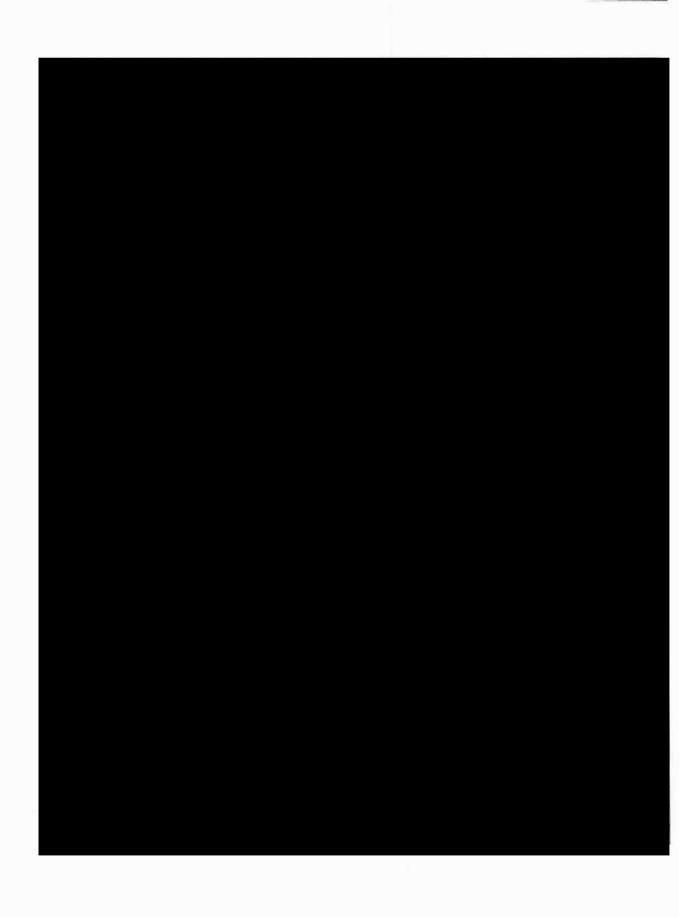
6 RAW MATERIAL AND PRODUCTS

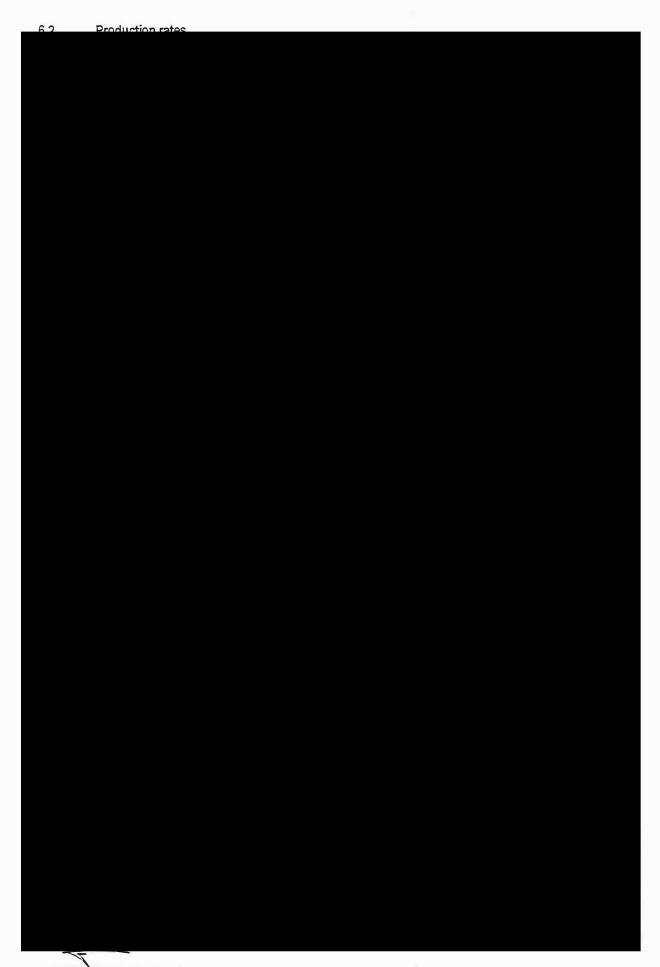
6.1 Raw materials used



| Catalyst Manufacturing & Catalyst Reduction | |
|---|--|
| 6 top/hr | |
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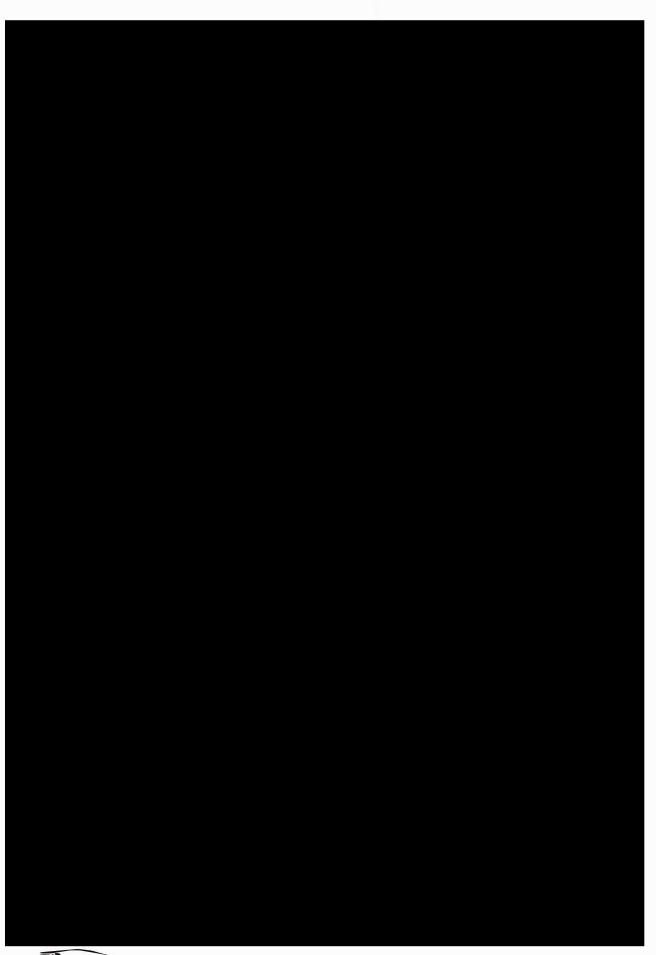






| Refining | | |
|----------------------------------|----------|------|
| Tar Distillation (Unit 14 / 214) | | |
| Light Naphtha | 3.36 | m³/h |
| Heavy Naphtha | 2.1 | m³/h |
| Medium Creosote | 4.62 | m³/h |
| Heavy Creosote | 2.48 | m³/h |
| Residue Oil | 2.52 | m³/h |
| Pitch | 8.19 | m³/h |
| | Unit 27A | |
| LNO-DTA | 11 | m³/h |
| Neutral Oil | 0.4 | m³/h |
| Unit 74 | | |
| SD-DTA | 1.75 | m³/h |
| Pitch | 3.5 | m³/h |







6.3 Energy sources used

| Energy Source | |
|-------------------|---|
| Synfueis facility | |
| Coal | |
| Electricity | |
| Steam | |
| Fuel gas | |
| Natural Gas | |
| | 1 |

6.4 Sources of atmospheric emission

6.4.1 Point Source parameters

Utilities:

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Helght of Releas e Above Groun d (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperat ure (°C) | Actual Gas Volumetric Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emissi on Hours | Type of Emission (Continuous / Batch / Intermittent) |
|----------------------|-------------------|----------------------------------|-----------------------------------|--|--|---|--|--|---|-----------------------|--|
| B1 | West stack | 26.55750 | 29.14993 | 250 | 230 | 13.6 | 185 | 10 025 400 | 23-27 | 24 | Continuous |
| B2 | East stack | 26.56014 | 29.16841 | 301 | 281 | 14.4 | 185 | 11 278 580 | 23-27 | 24 | Continuous |
| GT1 | Gas Turbine stack | 26.564167 | 29.165 | 40 | 37 | 5.3 | 548 | 3 176904 | 40 | 24 | Continuous |
| GT2 | Gas Turbine stack | 26.564167 | 29.164444 | 40 | 37 | 5.3 | 548 | 3 176 904 | 40 | 24 | Continuous |

Gas Production:

| Point Source code | Source nam | 10 | Latitude (decimal degrees) | Longitude (decimal degrees) | Helght of Releas e Above Groun d (m) | Helght Above Nearby Bullding (m) | Dlameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperatur e (°C) | Gas | Actual Gas Exit Velocity (m/s) | Emissi on Hours | Type of Emission (Continuous / Batch / Intermittent) |
|-------------------|------------|------|----------------------------------|-----------------------------------|--|--|---|--|---------|---|-----------------------|--|
| Rectisol East | Off gas to | main | 26.56014 | 29.16841 | 301 | 281 | 13.6 | 20-25 | 830 370 | 20-30 | 24 | Continuous |

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Releas e Above Groun d (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperatur e (°C) | Gas | Actual Gas Exit Velocity (m/s) | Emissi on Hours | Type of Emission (Continuous / Batch / Intermittent) |
|-------------------|-----------------------|----------------------------------|-----------------------------------|--|--|---|--|---------|---|-----------------------|--|
| | stack | | | | | | | | | | Ē |
| Rectisol West | Off gas to main stack | | | 250 | 230 | 14.4 | 20 – 25 | 830 370 | 20-30 | 24 | Continuous |

Gas Circuit:

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Releas e Above Groun d (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperat ure (°C) | Actual Gas Volumetrl c Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emissi on Hours | Type of Emission (Continuous / Batch / Intermittent) |
|----------------------|------------------------|----------------------------------|-----------------------------------|--------------------------------------|--|---|--|---|---|-----------------------|--|
| Catalyst Manuf | facturing | | | | | | | | | | |
| CM1 | West Kiln Stack | | | 25 | -5 | 0.91 | 170 | 81 163 | 28.7 | 24 | Batch |
| CM2 | West Arc Furnace Stack | İ | | 25 | -5 | 1.6 | 35 | 190 211 | 34.3 | 24 | Batch |
| CM3 | East A Kiln Stack | | | 25 | -5 | 0.76 | 205 | 33 917 | 12 | 24 | Batch |
| CM4 | East Arc Furnace Stack | Î | - | 25 | -5 | 1.6 | 73 | 43 720 | 5.35 | 24 | Batch |
| CM5 | East B Kiln Stack | | | 25 | -5 | 0.77 | 192 | 19 970 | 11.9 | 24 | Batch |

Refining:

| Point Source code | Source | name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Helght Above Nearby Bullding (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperature (°C) | Actual Gas Volumetric Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emission Hours | Type of Emission (Continuous / Batch / Intermittent) |
|----------------------|---------------------------|-----------------------|----------------------------------|-----------------------------------|--|--|---|---|--|---|-------------------|--|
| | | | | Ta | r Distillation | | | | | | | |
| R1 (14HT101) | Tar Reboiler Outlet | Distillation Stack | | | 51.876 | 46.876 | 0.894 | 440 | 7 390 | 3.27 | 24 | Conlinuous |
| R2 (14HT201) | Tar Reboiler Outlet | Distillation Stack | | | 51.876 | 46.876 | 0.894 | 440 | 7 390 | 3.27 | 24 | Continuous |
| R3(214HT101) | Tar Reboiler Outlet | Distillation Stack | | | 51.876 | 46.876 | 0.894 | 440 | 7 390 | 3.27 | 24 | Continuous |
| R4 (214HT201) | Tar Reboiler Outlet | Distillation Stack | | | 51.876 | 46.876 | 0.894 | 440 | 7 390 | 3.27 | 24 | Continuous |
| Creosote Hydro | genation | | | | | | | | | | | |
| R5(228HT101) | Healer sla | ck outlet | | | 41.274 | 36.274 | 0.914 | 318 | 9 220 | 3.90 | 24 | Continuous |
| Naphtha Hydrotr | eater, Platf | ormer and C | СК | | | | | | | | | |
| R6(30HT101) | NHT chargestack outle | | Ţ | | 51.876 | 46.876 | 1.22 | 298 | 6216 | 1.48 | 24 | Continuous |
| 7(30HT102) | Stripper heater stac | Reboiler k outlet | | | 38.4 | 33.4 | 0.99 | 304 | 11527 | 4.16 | 24 | Continuous |
| 8(30HT103) | Platformer | charge | | | 51.7 | 46.7 | 2.362 | 177 | 37722 | 2.39 | 24 | Continuous |

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperature (°C) | Actual Gas Volumetric Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emission Hours | Type of Emission (Continuous / Batch / Intermittent) |
|-------------------|--|----------------------------------|-----------------------------------|--|--|---|---|--|---|-------------------|--|
| | heater stack outlet | | | | | | | | | | |
| R9(30HT104) | Debutanizer Reboiler heater stack outlet | | | 43.0 | 38.0 | 1.28 | 360 | 8313 | 1.79 | 24 | Continuous |
| R10(30HT105) | Splitter Reboiler healer stack outlet | | | 38.4 | 33.4 | 0.99 | 313 | 6856 | 2.47 | 24 | Continuous |
| R11 (230HT101) | NHT charge heater stack outlet | | | 51.9 | 46.9 | 1.22 | 298 | 9696 | 2.3 | 24 | Continuous |
| R12 (230HT102) | Stripper reboiler stack outlet | | | 38.4 | 33.4 | 0.99 | 304 | 8576 | 3.09 | 24 | Continuous |
| R13 (230HT103) | Platformer Charge Healer stack outlet | | | 51.7 | 46.7 | 2.362 | 177 | 40816 | 2.59 | 24 | Continuous |
| R14 (230HT104) | Debutanizer reboiler stack outlet | | | 43.0 | 38.0 | 1.28 | 360 | 3312 | 0.79 | 24 | Continuous |
| R15 (230HT105) | Splitter reboiler stack outlet | | | 38.4 | 33.4 | 0.99 | 313 | 7115 | 2.57 | 24 | Continuous |
| Vacuum Distillati | on | | | | | | | | | | |
| R17 (34HT101) | Vacuum healer slack oullel | | | 32.0 | 27.0 | 1.27 | 321 | 10727 | 2.35 | 24 | Continuous |
| | Vacuum healer slack oullel | | | 32.0 | 27.0 | 1.27 | 321 | 10727 | 2.35 | 24 | Continuous |

| Point Source code | Source namé | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperature (°C) | Actual Gas Volumetric Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emission Hours | Type of Emission (Continuous / Batch / Intermittent) |
|---------------------|--|----------------------------------|-----------------------------------|--|--|---|---|--|---|-------------------|--|
| Distillate Hydrol | treater | | | | | | | | | | |
| R19 (35HT101) | Reactor Charge Heater stack outlet | | | 41.3 | 36.3 | 0.99 | 299 | 7865 | 1.916 | 24 | Continuous |
| R20 (35HT102) | Fractionators Charge Heater stack outlet | | | 44.2 | 39.2 | 1.350 | 345 | 11112 | 1.76 | 24 | Continuous |
| R22 (235HT101) | Reactor Charge Heater stack outlet | | | 41.3 | 36.3 | 1.308 | 299 | 6806 | 1.31 | 24 | Continuous |
| R23 (235HT102) | Fractionators Charge Heater stack outlet | | | 44.2 | 39.2 | 1.35 | 310 | 12641 | 2.45 | 24 | Continuous |
| Distillate Selectiv | ve Cracker | | | | | | | | | | |
| R24(35HT103) | Reactor Charge Heater stack outlet | | | 31.4 | 26.4 | 0.87 | 388 | 3495 | 1.63 | 24 | Continuous |
| | Fractionalors Charge Healer stack outlet | | - | 35.0 | 30.0 | 0.99 | 221 | 3135 | 1.13 | 24 | Continuous |
| , , | Vacuum Charge Heater stack outlet | | - | 31.0 | 26.0 | 0.684 | 340 | 3728 | 2.82 | 24 | Continuous |
| ight Oll Fraction | ation | | | | | 1 | | 1.63 | | | |
| 27 (29HT101) | Light Oil Splitter | | | 48.0 | 43 | 1.808 | 280 | 21349 | 2.31 | 24 | Continuous |

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Exit Temperature | Gas | Actual Gas Exit Velocity (m/s) | Emission Hours | Type of Emission (Continuous / Batch / Intermittent) |
|-------------------|---|----------------------------------|-----------------------------------|--|--|---|---------------------|-------|---|-------------------|--|
| | Reboiler stack outlet | | | | | | | | | | |
| R28 (29HT102) | Diesel Splitter Reboiler stack outlet | | | 42.6 | 37.6 | 1.200 | 267 | 13708 | 3.37 | 24 | Continuous |
| R29 (229HT101) | Light Oil Splitter Reboiler stack oullet | | | 47.7 | 42.7 | 1.727 | 367 | 36129 | 4.28 | 24 | Continuous |
| Polymer Hydroti | reating | | | | | | | | | | |
| R30(33HT101) | Stripper Reboiler stack outlet | | | 34.9 | 29.9 | 1.53 | 300 | 15260 | 8300 | 24 | Continuous |
| R31(33HT102) | Charge Heater stack outlet | | | 38.68 | 33.68 | 1.4 | 274 | 16055 | 10429 | 24 | Continuous |
| R32(33HT105) | Splitter Reboiler stack outlet | ; | | 46 | 41 | 1.37 | 320 | 26830 | 18200 | 24 | Continuous |
| R33(233HT101) | Stripper Reboiler stack outlet | 2 | | 34.9 | 29.9 | 1.53 | 300 | 15260 | 8300 | 24 | Continuous |
| R34(233HT102) | Charge Heater stack outlet | 2 | | 38.68 | 33.68 | 1.4 | 274 | 16055 | 10429 | 24 | Continuous |
| R35(233HT105) | Splitter Reboiler stack outlet | 2 | | 46 | 41 | 1.37 | 320 | 26830 | 18200 | 24 | Continuous |
| Catalytic Polyme | erisation and LPG reco | Ve | | | | | | | | | |
| R36 (32HT101) | Poly Debutanizer Reboiler stack | 2 | | 37.2 | 32.2 | 1.24 | 267 | 16520 | 13679 | 24 | Continuous |

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Bullding (m) | Diameter at Stack Tip / Vent Exit (m) | Exit Temperature | Actual Gas Volumetric Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emission Hours | Type of Emission (Continuous / Batch / Intermittent) |
|-------------------|---|----------------------------------|-----------------------------------|--|--|---|---------------------|--|---|-------------------|--|
| | oullet. | | | | | | | | | | |
| R37 (32HT201) | Poly Debutanizer Reboiler stack oullet. | | | 37.2 | 32.2 | 1.24 | 226 | 15266 | 12641 | 24 | Continuous |
| R38 (32HT102) | Recycle Column Reboiler stack outlet. | | | 51.5 | 46.5 | 2.13 | 309 | 86588 | 24300 | 24 | Continuous |
| R39(232HT101) | Poly Debutanizer Reboiler stack oullet. | | | 37.2 | 32.2 | 1.24 | 267 | 17530 | 14516 | 24 | Continuous |
| R40(232HT201) | Poly Debutanizer Reboiler stack outlet. | | | 37.2 | 32.2 | 1.24 | 226 | 18754 | 15529 | 24 | Continuous |
| R41(232HT102) | Recycle Column Reboiler stack outlet. | | | 51.5 | 46.5 | 2.13 | 309 | 84654 | 23757 | 24 | Continuous |
| Sasol Catalytic C | onverter | | | | | | | | | | |
| SCC1 Stack | Main stack | | | 80 | 76 | 1.067 | 232 | 410 000 | 12.5 | 24 | Continuous |
| | Slurry Storage Tank – N₂ blanketing | | | 11 | N/A | N/A | N/A | N/A | N/A | 24 | Intermittent |
| , , , | Fuel Oil Storage Tank – N₂ blanketing | | | 11 | N/A | N/A | N/A | N/A | N/A | 24 | Intermittent |

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Bulkling (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperature (°C) | Actual Gas Volumetric Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emission Hours | Type of Emission (Continuous / Batch / Intermittent) |
|-------------------|--|----------------------------------|-----------------------------------|--|--|---|---|--|---|-------------------|--|
| SCC4(TK 1003) | Fuel Oil Make-up Tank - N ₂ blanketing | | | 7 | N/A | N/A | N/A | N/A | N/A | 24 | Intermittent |
| SCC5(TK 3201) | DEA – Storage Tank – N₂ blanketing | | | 9 | N/A | N/A | N/A | N/A | N/A | 24 | Intermittent |
| SCC6(TK 3202) | Slop Oil tank − N ₂ blanketing | | | 5.7 | N/A | N/A | N/A | N/A | N/A | 24 | Intermittent |
| SCC7(TK 3401) | Caustic Storage Tank – N ₂ blanketing | | | 5.5 | N/A | N/A | N/A | N/A | N/A | 24 | Intermittent |
| SCC8(TK 3402) | Spent Caustic Tank - N₂ blanketing | | | 5.5 | N/A | N/A | N/A | N/A | N/A | 24 | Intermittent |

| Tar, Phenosolvan and S | Sulpi | nur: |
|------------------------|-------|------|
|------------------------|-------|------|

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperat ure (°C) | Actual Gas Volumetri c Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emissi on Hours | Type of Emission (Continuous / Batch / Intermittent) |
|----------------------|------------------------------------|----------------------------------|-----------------------------------|---|--|---|--|---|---|-----------------------|--|
| Phenosolvan | | | | | | | | | | | |
| P1 | Ammonia vent line at west stack | | | 250 | 230 | 0.6 | 33 | 30 | 0.114 | lnt | lermillenl |

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Bullding (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperat ure (°C) | Actual Gas Volumetri c Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emissi on Hours | Type of Emission (Continuous / Batch / Intermiltent) |
|--------------------------|---------------------------------|----------------------------------|-----------------------------------|---|--|---|--|---|---|-----------------------|--|
| P2 | Ammonia vent line at east stack | | | 301 | 281 | 0.6 | 31 | 30 | 0.114 | In | termittent |
| Wet Sulphuric | Acid | | | | | | | | | | |
| WSA1 (518ME- 1003) | Wet Sulphuric Acid stack | | | 75 | 65 | 2.75 | 41 | 206 600 | 9.73 | 24 | Continuous |
| Carbo Tar and | Coal Tar Filtration | | | | | | | | | | |
| FPP1(U86 TK201) | Storage and mixing Tank | | | 18 | 12 | N/A | N/A | N/A | N/A | 24 | Batch |
| FPP2 (U86TK202) | Storage and mixing Tank | | | 18 | 12 | N/A | N/A | N/A | N/A | 24 | Balch |
| FPP3(U86 TK203) | Storage and mixing Tank | | | 18 | 12 | N/A | N/A | N/A | N/A | 24 | Balch |
| | Storage and mixing Tank | | | 18 | 12 | N/A | N/A | N/A | N/A | 24 | Batch |
| FPP5(U86 E514) | Stack | | | 18 | 14 | 0.609 | 17.86 | 20 000 | 24 | 24 | Batch |
| CT1 (39 (K101) | Waxy Oil 30 tank | | | 10 | 6 | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT 2 (39 | Waxy Oil 30 tank | | | 10 | 6 | N/A | N/A | N/A | N/A | 24 | Continuous |

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Building (m) | Diameter at Stack Tlp / Vent Exit (m) | Actual Gas Exit Temperat ure (°C) | Actual Gas Volumetri c Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emissi on Hours | Type of Emission (Continuous / Batch / Intermittent) |
|--------------------|-------------------------------|----------------------------------|-----------------------------------|------------------------------------|--|---|--|---|---|-----------------------|--|
| TK102) | | | | | | | | | | | |
| CT3 (39 TK103) | Pitch tank | | | 10 | 6 | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT4 (39 TK104) | Pitch tank | | | 10 | 6 | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT5 (39 TK105) | Pitch tank | | | 10 | 6 | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT6 (39 TK112) | FCC Slurry tank | | | 10 | 6 | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT7 (39 TK 113) | FCC Slurry tank | | | 10 | 6 | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT8 (39 TK 114) | FCC Slurry tank | | | 10 | 6 | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT9 (39 TK 115) | FCC Slurry tank | | | 10 | 6 | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT10 (39TK 201) | Fuel Oil 10 | | | 8 | N/A | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT11 (39TK 202) | Low Sulphur Heavy Fuel Oil | | | 8 | N/A | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT12 (39TK | Low Sulphur Heavy Fuel Oil | | | 8 | N/A | N/A | N/A | N/A | N/A | 24 | Continuous |

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Bullding (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperat ure (°C) | Actual Gas Volumetri c Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emissi on Hours | Type of Emission (Continuous / Batch / Intermittent) |
|--------------------|---------------|----------------------------------|-----------------------------------|---|--|---|--|---|---|-----------------------|--|
| 203) | | | | | | | | | | | |
| CT13 (39TK 204) | Heavy Tar Oil | | | 8 | N/A | N/A | N/A | N/A | N/A | 24 | Continuous |
| CT14 (39 H101) | Stack | 2 | | 60 | 56 | 1.53 | 320 | 5.74 | 3.1 | 24 | Continuous |

Water and Ash:

| Point Source code | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperature (°C) | Actual Gas Volumetric Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emission Hours | Type of Emission (Continuous / Batch / Intermittent) |
|----------------------|----------------|----------------------------------|-----------------------------------|---|--|---|---|--|---|-------------------|--|
| Multi Hearth Sludg | e Incinerators | | | | *** | 1 | | | | | |
| WA1(52WK-2102) | Stack | | | 30 | 10 | 1.2 | 80 | 41 063 | 10.08 | 24 | Continuous |
| WA2(52WK-2202) | Stack | | | 30 | 10 | 1.2 | 80 | 41 063 | 10.08 | 24 | Continuous |
| WA3(252WK- 2102) | Stack | | | 30 | 10 | 1.2 | 80 | 40 298 | 9.89 | 24 | Continuous |
| WA4 (252WK- 2202) | Stack | | | 30 | 10 | 1.2 | 80 | 40 298 | 9.89 | 24 | Continuous |

| Point code | Source | Source name | Latitude (decimal degrees) | Longitude (decimal degrees) | Height of Release Above Ground (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperature (°C) | Actual Gas Volumetric Flow (m³/hr) | Actual Gas Exit Velocity (m/s) | Emission Hours | Type of Emission (Continuous / Batch / Intermittent) |
|--------------|-------------|------------------|----------------------------------|-----------------------------------|---|--|---|---|--|---|-------------------|--|
| HOW Inc | cinerators | | | | | | | | | | | |
| HOW1 101) | (052CI- | Chimney | | | 15 | 7 | 1.8 | 600(max) | 74 731 | 8.15 | 24 | Continuous |
| HOW2 101) | (252CI- | Chimney | | | 15 | 7 | 1.8 | 600 (max) | 60055 | 6.55 | 24 | Continuous |
| Sewage | Incinerator | | | | JET L | | | | | | | |
| SW1 (353 | 3IN101) | Chimney | 2 | | 10 | 5 | 0.8 | 231 | 4485 | 4.4 | 24 | Balch |
| WRF RT | 0 | | | | | | | | | | | |
| WRF | | Thermal oxidiser | 2 | | 20 | 15 | 1.25 | 815 | 1940 | 0.44 | 24 | Continuous |

6.4.2 Area source parameters

| Area Source Code | Source Name | Source Description | Latitude (decimal degrees) of SW corner | Longitude (decimal degrees) of SW corner | Height of Release Above Ground (m) | Length of Area (m) | Width of Area (m) | Emission Hours | Type of Emission (Continuous / Intermittent) |
|------------------------|-------------------|--------------------|---|---|---|-----------------------|----------------------|-------------------|--|
| Gas Pro | duction | | | | | | | | |
| CP1 | East Coal storage | Coal stockpile | | | 0 | 454 | 276 | 24 | Intermittent |
| CP2 | West Coal storage | Coal stockpile | | | 0 | 432 | 357 | 24 | Intermittent |

7 APPLIANCES AND MEASURES TO PREVENT AIR POLLUTION

7.1 Appliances and control measures

| | Appliances | | | Abatement Equi | pment Control T | echnology | | | | | |
|---------------------------|--------------------------------------|-------------------------------|--------------------------------|---|---|---------------------|---|-----------------------|---------------------------|---|-------------------------------|
| Associated Source Code | Appliance / Process Equipment Number | Appliance Serial Number | Type / Description | Abatement Equipment Technology Name and Model | Abatement Equipment Technology Manufacture Date | Commissi on Date | Date of Significant Modification / Upgrade | Technology Type | Design Capacity | Minimum Control Efficiency (%) | Minimum Utilisation (%) |
| B1 & B2 | 43/243FTX 01 | None | Electrostatic Precipitators | Not available | Lurgi x 16 Lodge- Cotrell x 1 | 1977-1983 1987 | None None | Wire / Plate ESP's | PM<200mg/ Nm³ | Not available | > 95% |
| СМЗ | U204 Kiln A | None | Stainless Steel Filter | Not available | Not available | 2005 | None | Filtration | 16500 m³ _n /hr | Not available | 95% |

| CM5 | U204 Kiln B | None | Ceramic Filters | Not available | Not available | 2000 | 2008 | Filtration | 16500 m³ _s /hr | Not available | 95% |
|-----------------------------|--|------|--------------------------------------|----------------------------|---------------|------|------|---------------------------|---------------------------|------------------|-----|
| CM1 | U04 Kiln | None | Ceramic Filter | Not available | Not available | 2000 | 2008 | Filtration | 12500 m³ _r /hr | Not available | 95% |
| WA1, WA2, WA3, WA4 | 052WK- 2101 052WK- 2201 252WK- 2101 252WK- 2201 | None | Venturi Scrubber | Venturi Scrubber | 1978 | 1978 | None | Solid / Gas Separation | 9,7 m³ | Not available | 96% |
| WSA1 | 518ME- 1003 | None | Wet Electrostatic precipitator | Electrostatic precipitator | 2007 | 2009 | None | N/A | 183446 Nm³/h | 75% | 98% |
| WSA1 | 518RE- 1001 | None | DeNOx converter | Reactor | 2007 | 2009 | None | N/A | 268101 kg/h | 65% | 98% |

7.2 Point Source -- maximum emission rates (under normal working conditions)

Utilities

| | | Maximum Release Rate | | | |
|--------------------|-------------------------|--|---|----------------|-----------------------|
| Point Source Code | Pollutant Name | '(mg/Nm³) expressed as on a dally average under normal conditions of 273K, 101,3-kPa , 10% Oxygen and dry gas | | Average Perlod | Ouration of Emissions |
| | Particulate matter (PM) | 120 | 1 April 2015 to 31 March 2020 | Daily | Continuous |
| * B1 (U43) | SO ₂ | 3500 2000 | 1 April 2015- 31 March 2020 1 April 2020 - 31 March 2025 | Daily | Continuous |
| | NO _x | 1100 | 1 April 2015 to 31 March 2020 | Daily | Continuous |
| | Particulate malter (PM) | 120 | 1 April 2015 to 31 March 2020 | Daily | Continous |
| ° B2 (2U43) | SO ₂ | 3500 2000 | 1 April 2015- 31 March 2020 1 April 2020 - 31 March 2025 | Daily | Continuous |
| | NO _x | 1100 | 1 April 2015 to 31 March 2020 | Daily | Continuous |
| | Particulate matter (PM) | 10 | 1 April 2015 | Daily | Conlinuous |
| GT1 | SO ₂ | 500 | 1 April 2015 | Daily | Continuous |
| | NO _x | 300 | 1 April 2015 | Daily | Continuous |
| | Particulate malter (PM) | 10 | 1 April 2015 | Daily | Continuous |
| ST2 | SO ₂ | 500 | 1 April 2015 | Daily | Continuous |
| | NO _x | 300 | 1 April 2015 | Daily | Continuous |

Gas Production

| | | Maximum Release Rate | | | |
|--|------------------|---|-------------------------------|-----------------------|-----------------------|
| Point Source Code | Pollutant Name | (mg/Nm³) under normal conditions of 273 Kelvinand 101.3 kPa | | Average Period Daily | Duration of Emissions |
| | H₂S | 8400 | 1 April 2015 to 31 March 2020 | Daily | Continuous |
| Rectisol East (Off gas to mair stack) | Total VOC's | 300 | 1 April 2015 to 31 March 2020 | Daily | Continuous |
| stack) | *SO ₂ | 3500 | 1 April 2015 to 31 March 2017 | Daily | Continuous |

^{*}The facility is required to undertake emission measurements and to report quarterly until 1 April 2017

| | Maximum Release Rate | | Release Rate | | |
|---------------------------|----------------------|---|----------------------------------|------------------------------|-----------------------|
| Point Source Code | Pollutant Name | (mg/Nm³) under normal conditions of 273 Kolvinand 101.3 kPa | Date to be Achleved By | Average Perlod Daily Daily | Duration of Emissions |
| | H₂S (measured as S) | 13.5 Vhr (combined with East) | Immediately | Daily | Continuous |
| Rectisol West (Off gas to | Total VOC's | 250 | 1 April 2015 | Daily | Continuous |
| main stack) | H₂S | 4200 | 1 April 2015 | Daily | Continuous |
| | * SO ₂ | 3500 | 1 April 2015 to 31 March 2017 | Daily | Continuous |

^{*}The facility is required to undertake emission measurements and to report quarterly until 1 April 2017

Gas Circuit

| | | Maximum Release Rate | | | | |
|------------------------------|---|----------------------|--------------|----------------|-----------------------|--|
| Point Source Code | e Code Pollutant Name (mg/Nm³) under Date to be Achieved normal conditions of By 273 Kelvin and 101.3 kPa | | | Average Period | Duration of Emissions | |
| | Particulate malter (PM) | 100 | Immediately | Daily | Continuous | |
| CM1 (West Kiln Stack) | SO ₂ | 500 | 1 April 2015 | Daily | Continuous | |
| | NO _x as (NO₂) | 2000 | 1 April 2015 | Daily | Continuous | |
| CM2 (West Arc Furnace stack) | Particulate malter (PM) | 100 | Immediately | Daily | Continuous | |
| | SO₂ | 500 | 1 April 2015 | Daily | Continuous | |
| | NO _x as (NO ₂) | 500 | 1 April 2015 | Daily | Continuous | |
| | Particulate matter (PM) | 100 | Immediately | Daily | Continuous | |
| CM3 (East Kiln A Stack) | SO ₂ | 500 | 1 April 2015 | Daily | Continuous | |
| | NO _x as (NO ₂) | 2000 | 1 April 2015 | Daily | Continuous | |
| 0111/5 | Particulate matter (PM) | 100 | Immediately | Daily | Continuous | |
| CM4 (East Arc Furnace stack) | SO₂ | 500 | 1 April 2015 | Daily | Continuous | |
| | NO _x as (NO ₂) | 500 | 1 April 2015 | Daily | Continuous | |
| | Particulate matter (PM) | 100 | Immediately | Daily | Continuous | |
| CM5 (East Kiln B Stack) | SO₂ | 500 | 1 April 2015 | Daily | Continuous | |
| | NO _x as (NO ₂) | 2000 | 1 April 2015 | Daily | Continuous | |

Refining

| | | Maximum Release Rate | | I NAME OF | de dine |
|-------------------|---------------------------------------|--|--------------|-------------------|-----------------------|
| Point Source Code | Pollutant Name | (mg/Nm³) expressed as on a daily Date to be average under normal conditions of Achieved By 273K, 101,3-kPa, 10% Oxygen and dry gas | | Average Period | Duration of Emissions |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R1 (14HT101) | SO₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R2 (14HT201) | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| 3(214HT101) | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R4 (214HT201) | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| Ī | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| R5(228HT101) | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| | SO₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |

| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
|-------------------------------------|---------------------------------------|---|----------------------|---|------------|
| R6(30HT101) | NO _x as (NO ₂) | 1700 | 1 April 201 <u>5</u> | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1' April 2015 | Daily | Continuous |
| R7(30HT102) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| R8(30HT103) R9(30HT104) | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R8(30HT103) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| (********************************** | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R9(30HT104) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R10(30HT105) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | SO2 1700 1 April 2015 Daily ticulate matter (PM) 120 1' April 2015 Daily NO _x as (NO ₂) 1700 1 April 2015 Daily SO2 1700 1 April 2015 Daily Iculate matter (PM) 120 1 April 2015 Daily NO _x as (NO ₂) 1700 1 April 2015 Daily SO2 1700 1 April 2015 Daily iculate matter (PM) 120 1 April 2015 Daily NO _x as (NO ₂) 1700 1 April 2015 Daily iculate matter (PM) 120 1 April 2015 Daily NO _x as (NO ₂) 1700 1 April 2015 Daily NO _x as (NO ₂) 1700 1 April 2015 Daily NO _x as (NO ₂) 1700 1 April 2015 Daily NO _x as (NO ₂) 1700 1 April 2015 Daily NO _x as (NO ₂) 1700 1 April 2015 Daily NO _x as (NO ₂) 1700 1 April 2015 Daily NO _x | Continuous | | |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R11 (230HT101) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R12 (230HT102) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |

| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
|----------------|---------------------------------------|--|--------------|------------|------------|
| R13 (230HT103) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 1 April 2015 Daily (PM) 120 1 April 2015 Daily 1700 1 April 2015 Daily 1700 1 April 2015 Daily (PM) 120 1 April 2015 Daily 1700 1 April 2015 Daily (PM) 120 1 April 2015 Daily (PM) 120 1 April 2015 Daily 1700 1 April 2015 Daily PM) 120 1 April 2015 Daily PM) 120 1 April 2015 Daily PM) 120 1 April 2015 Daily 1700 1 April 2015 Daily | Continuous | | |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R14 (230HT104) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R15 (230HT105) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R17 (34HT101) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO₂ | SO2 1700 1 April 2015 Dail Particulate matter (PM) 120 1 April 2015 Dail NOx as (NO2) 1700 1 April 2015 Dail Particulate matter (PM) 120 1 April 2015 Dail NOx as (NO2) 1700 1 April 2015 Dail SO2 1700 1 April 2015 Dail articulate matter (PM) 120 1 April 2015 Daily NOx as (NO2) 1700 1 April 2015 Daily SO2 1700 1 April 2015 Daily articulate matter (PM) 120 1 April 2015 Daily articulate matter (PM) 120 1 April 2015 Daily articulate matter (PM) 120 1 April 2015 Daily | Daily | Continuous | |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R18 (234HT101) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO₂ | 1700 | Daily | Continuous | |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R19 (35HT101) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R20 (35HT102) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |

| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
|---|---------------------------------------|---|---|--|------------|
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R22 (235HT101) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R23 (235HT102) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 Dail 1 April 2015 Daily 1 April 2015 Daily 1 April 2015 Daily | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R24(35HT103) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | ril 2015 Daily ril 2015 Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R25(35HT104) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | 1 April 2015 Daily | Continuous |
| 25(35HT103) 25(35HT104) 26(35HT105) | NO _x as (NO₂) | 550 | 1 April 2015 | Daily | Continuous |
| | SO₂ | 3000 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R27 (29HT101) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | Iter (PM) 120 1 April 2015 Daily O2) 1700 1 April 2015 Daily 1700 1 April 2015 Daily Iter (PM) 120 1 April 2015 Daily D2) 1700 1 April 2015 Daily 1700 1 April 2015 Daily D2) 1 April 2015 Daily | Continuous | | |
| R28 (29HT102) | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| 1120 (20111102) | NO₂ as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |

| | SO₂ | 1700 | 1 April 2015 | Daily | Continuous |
|----------------|---------------------------------------|--|---|---|------------|
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R29 (229HT101) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | Daily | Continuous | | |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R30(33HT101) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 1 April 2015 1700 1 April 2015 120 1 April 2015 1700 1 April 2015 1700 1 April 2015 120 1 April 2015 1700 1 April 2015 1700 1 April 2015 1700 1 April 2015 1700 1 April 2015 120 1 April 2015 1700 1 April 2015 | Daily | Continuous | |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R31(33HT102) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | 1 April 2015 Daily 1 April 2015 Daily 1 April 2015 Daily Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R32(33HT105) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R33(233HT101) | NO _x as (NO ₂) | 1700 | 1 April 2015 | Daily | Continuous |
| Ī | SO ₂ | 1700 | 1 April 2015 Daily | Continuous | |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R34(233HT102) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 Daily | Daily | Continuous |
| D05/0001177405 | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R35(233HT105) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |

| | SO₂ | 1700 | 1 April 2015 | Daily | Continuous |
|----------------|--------------------------|------|--------------|---|------------|
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R36 (32HT101) | NO₂ as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R37 (32HT201) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R38 (32HT102) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R39 (232HT101) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate matter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R40 (232HT201) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO ₂ | 1700 | 1 April 2015 | Daily | Continuous |
| | Particulate malter (PM) | 120 | 1 April 2015 | Daily | Continuous |
| R41 (232HT102) | NO _x as (NO₂) | 1700 | 1 April 2015 | Daily | Continuous |
| | SO₂ | 1700 | 1 April 2015 | Daily | Continuous |

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| A Court in the | | Maximum Release Rate | | | | |
|-------------------|--------------------------|---|----------------------------------|----------------|----------------------|--|
| Point Source Code | Pollutant Name | (mg/Nm³)expressed as on a dally average under normal conditions o 273K, 101,3·kPa 10% Oxygen and dry gas | filmeframe | Average Period | Duration of Emission | |
| | Particulate matter (PM) | 330 | 1 April 2015 to 31 March 2020 | Daily | Continuous | |
| SCC 1, Stack | NO _x as (NO₂) | 550 | 1 April 2015 | Daily | Continuous | |
| | SO ₂ | 3000 | 1 April 2015 | Daily | Continuous | |

Wet Sulphuric Acid plant

| | PREAL | Maximum Release Rate | | | | |
|-------------------|-----------------|--|-------------------------------|----------------|-----------------------|--|
| Point Source Code | Pollutant Name | (mg/Nm³) expressed as on a dally average under normal conditions of 273K, 101,3-kPa, 10% Oxygen and dry gas | | Average Period | Duration of Emissions | |
| WSA1 | SO ₂ | 2800 | 1 April 2015 to 31 March 2020 | Daily | Continuous | |
| (518ME-1003) | SO ₃ | 100 | 1 April 2015 to 31 March 2020 | Daily | Continuous | |
| (calegory 7.2) | NO _X | 2000 | 1 April 2015 to 31 March 2020 | Daily | Continuous | |

Phenosolvan

| | | Maximum Release Rate | | | | |
|-------------------------------|--------|--|-------------------------------|----------------|-----------------------|--|
| Point Source Code Pollutant N | | (mg/Nm³) expressed as on a dailyDate to be Achieved By average under normal conditions of 273K, 101,3kPa | | Average Period | Duration of Emissions | |
| WSA1/P1 | TVOC's | 58000 | 1 April 2018 to 31 March 2020 | Daily | Continuous | |
| WSA2/P2 (Unit 16/216) | TVOC's | 58000 | 1 April 2018 to 31 March 2020 | Daily | Continuous | |

Tar, (sources in tar value chain 1)

| Point Source Code | Pollutant Name | Maximum Release Rate | | | GCC GIVE TO THE |
|--|----------------|---|--------------------------------|----------------|-----------------------|
| | | (mg/Nm³) expressed as on a clally average under normal conditions of 273K, 101,3-kPa, 10% Oxygen and dry gas | Ву | Average Period | Duration of Emissions |
| R21 (U14/2 14 RTO's stack) FPP1 (U86 RTO's) GLS1 (U13 RTO's GLS2 (U213 RTO's) | TVOC's | * 250 | 1 April 2015- 31 March 2017 | Daily | Continously |

Emmisssions are to be incorporated into the side fugitive monitoring plan

Tar, (sources in tar value chain 2)

| Point Source Code | Pollutant Name | Maximum Release Rate | | | Duration of Emissions |
|--|----------------|---|--------------------------------|----------------|-----------------------|
| | | (mg/Nm³) expressed as on a dally average under normal conditions of 273K, 101,3- kPa | Achieved By | Average Period | |
| (518ME-1003) [calegory 3.3] 39TK103 39TK104 39TK105 | TVOC's | * 250 | 1 April 2015- 31 March 2020 | Daily | Continuous |

^{*} Emmisssions are to be incorporated into the side fugitive monitoring plan (inclusive of requirements of 2.4 / 2.6)

Water and Ash

| Point Source Code | THE PART OF THE | Maximum Release Rate | | | |
|-------------------|--|---|-------------------------------|----------------|-----------------------|
| | Pollutant Name | (mg/Nm³)mg/Nm³) expressed as on a dally average under normal conditions of 273K, 101,3-kPa, 10% Oxygen and dry gas | | Average Period | Duration of Emissions |
| WA1 (052WK-2102) | Particulate matter (PM) | 400 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | со | 4310 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | SO ₂ | 210 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | NO _x expressed as NO ₂ | 630 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | HCI | 23 | 1 April 2018 to 31 March 2020 | Daily | Continuous |

| HF | 20 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
|-----------------------------------|---|-------------------------------|-------|------------|
| Pb+As+Sb+Cr+Co+Cu+Mn+Ni+V | 2.6 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| Hg | 1 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| Cd+Tl | 0.12 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| тос | 1500 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| NH ₃ | 52 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| Dioxins and furans (PCDD/PCDF) | 0.3 (ng I-TEQ/Nm³) under normal conditions of 10% O₂, 273K and 101.3kPa | 1 April 2018 to 31 March 2020 | Daily | Continuous |

| Point Source Code | Pollutant Name | Maximum Release Rate | | | |
|-------------------|----------------------------------|---|-------------------------------|----------------|-----------------------|
| | | (mg/Nm³)mg/Nm³) expressed as on a daily average under normal conditions of 273K, 101,3-kPa, 10% Oxygen and dry gas | | Average Period | Duration of Emissions |
| WA2 (052WK-2202) | Particulate matter (PM) | 400 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | со | 4310 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | SO ₂ | 210 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | NO _x expressed as NO₂ | 630 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | HCI | 23 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | HF | 20 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Pb+As+Sb+Cr+Co+Cu+Mn+Ni+V | 2.6 | 1 April 2018 to 31 March 2020 | Daily | Continuous |

| Hg | 1 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
|-----------------------------------|---|-------------------------------|-------|------------|
| Cd+Tl | 0.12 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| тос | 1500 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| NH ₃ | 52 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| Dioxins and furans (PCDD/PCDF) | 0.3 (ng I-TEQ/Nm³) under normal conditions of 10% O₂, 273K and 101.3kPa | 1 April 2018 to 31 March 2020 | Daily | Continuous |

| | | Maximum Release Rate | Maximum Release Rate | | |
|-------------------|----------------------------------|---|-------------------------------|----------------|--------------------------|
| Point Source Code | Pollutant Name | (mg/Nm³)expressed as on a dally average under normal conditions of 273K, 101,3-kPa, 10% Oxygen and dry gas | | Average Period | Duration of Emissions |
| WA3 (252WK-2102) | Particulate matter (PM) | 400 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | co | 4310 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | SO₂ | 210 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | NO _x expressed as NO₂ | 630 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | HCI | 23 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | HF | 20 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Pb+As+Sb+Cr+Co+Cu+Mn+Ni+V | 2.6 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Hg | 1 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Cd+TI | 0.12 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | TOC | 1500 | 1 April 2018 to 31 March 2020 | Daily | Continuous |

| NH₃ | 52 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
|-----------------------------------|---|-------------------------------|-------|------------|
| Dioxins and furans (PCDD/PCDF) | 0.3 (ng I-TEQ/Nm³) under normal conditions of 10% O₂, 273K and 101.3kPa | 1 April 2018 to 31 March 2020 | Daily | Continuous |

| | conditions of 273K, 101,3-KPa | | | | |
|-------------------|----------------------------------|---------------------------------|-------------------------------|----------------|--------------------------|
| Point Source Code | | on a dally average under norma | | Average Period | Duration of Emissions |
| WA4 (252WK-2202) | Particulate matter (PM) | 400 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | co | 4310 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | SO ₂ | 210 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | NO _x expressed as NO₂ | 630 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | HCI | 23 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | HF | 20 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Pb+As+Sb+Cr+Co+Cu+Mn+Ni+V | 2.6 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Hg | 11 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Cd+Tl | 0.12 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| 1 | ГОС | 1500 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| 1 | NH₃ | 52 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Dioxins and furans | 0.3 (ng I-TEQ/Nm³) under normal | 1 April 2018 to 31 March 2020 | Daily | Continuous |

| (PCDD/PCDF) | conditions of 10% O ₂ , 273K and | |
|-------------|---|--|
| | 101.3kPa | |

| | | Maximum Release Rate | | | |
|--------------------------------------|--|---|----------------------------------|----------------|-----------------------|
| Point Source Code | Pollutant Name | (mg/Nm³)expressed as on a daily average under norma conditions of 273K, 101,3-kPa 10% Oxygen and dry gas | | Average Period | Duration of Emissions |
| SW1 (353IN101) [sub-calegory 8.1] | Exit tempearature | 350-400°C | 1 April 2015 to 31 March 2017 | Daily | Continous |
| | Particulate matter (PM) | 25 | 1 April 2015 to 31 March 2017 | Daily | Continuous |
| | со | 75 | 1 April 2015 to 31 March 2017 | Daily | Continuous |
| | SO ₂ | 50 | 1 April 2015 to 31 March 2017 | Daily | Continuous |
| | NO _x expressed as NO ₂ | 200 | 1 April 2015 to 31 March 2017 | Daily | Continuous |
| | HCI | 10 | 1 April 2015 to 31 March 2017 | Daily | Continuous |
| | HF | 1 | 1 April 2015 to 31 March 2017 | Daily | Continuous |
| | Ph+As+Sh+Cr+Co+Cu+Mn+Ni+V | 0.5 | 1 April 2015 to 31 March 2017 | Daily | Continuous |
| | Hg | | 1 April 2015 to 31 March 2017 | Daily | Continuous |
| | Cd+TI | 0.05 | 1 April 2015 to 31 March 2017 | Daily | Continuous |

| | TOC | 10 | 1 April 2015 | Daily | Continuous |
|--|--|---|----------------------------------|----------------|-----------------------|
| | NH ₃ | 10 | 1 April 2015 | Daily | Continuous |
| | Dioxins and furan (PCDD/PCDF) | 0.1 (ng I-TEQ/Nm³) under normal conditions of 10% O ₂ , 273K and 101.3kPa | 1 April 2015 | Daily | Continuous |
| | | Maximum Rele | ase Rate | | |
| Point Source Code | Pollutant Name | (mg/Nm³)expressed as on a dally average under normal conditions of 273K, 101,3-kPa, 10% Oxygen and dry gas | | Average Period | Duration of Emissions |
| HOW1 (052CI-101) [sub-category 8.1] | Particulate matter (PM) | 900 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| [stip-category o, 1] | со | 1300 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | SO₂ | 400 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | NO _x expressed as NO ₂ | 3800 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | нсі | 55 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | HF | | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Pb+As+Sb+Cr+Co+Cu+Mn+Ni+V | | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Hg | 0.27 | April 2018 to 31 March 2020 | Daily | Continuous |
| 3) | Cd+TI | | April 2018 to 31 March 2020 | Daily | Continuous |

| | тос | 38 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
|--|--|--|----------------------------------|-------|------------|
| | NH ₃ | 12 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Dioxins and furans (PCDD/PCDF) | 4.2 (ng I-TEQ/Nm³) under normal conditions of 10% O ₂ , 273K and 101.3kPa | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Exit gas temperature | Less than 400°C | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| HOW2 (252CI-101) [sub-category 8.1] | Particulate matter (PM) | 900 | 1 April 2018 to 31 March 2020 | Daily | Continous |
| [Sub-category o. 1] | со | 1300 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | SO ₂ | 400 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| 8 | NO _x expressed as NO ₂ | 3800 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | нсі | 55 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | HF | 3 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Pb+As+Sb+Cr+Co+Cu+Mn+Ni+V | | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Hg | | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | Cd+Tl | 0.12 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | TOC | 38 | 1 April 2018 to 31 March 2020 | Daily | Continuous |
| | NH ₃ | , 12 | 1 April 2018 to 31 March 2020 | Daily | Continuous |

| Dioxins and furans (PCDD/PCDF) | 4.2 (ng I-TEQ/Nm³) under norma conditions of 10% O ₂ , 273K and 101.3kPa | 1 April 2018 to 31 March 2020 | Daily | Continuous |
|--------------------------------|---|----------------------------------|-------|------------|
| Exit gas temperature | Less than 400°C | 1 April 2018 to 31 March 2020 | Daily | Continuous |

| | | Maximum Release Rate | | | |
|-------------------|----------------------------------|---|----------------------------------|----------------|-----------------------|
| Point Source Code | Pollutant Name | mg/Nm³ expressed as on a dall average under norma conditions of 273K, 101,3-KPa 10% Oxygen and dry gas | | Average Perlod | Duration of Emissions |
| | Particulate malter (PM) | 300 | 1 April 2015 to 31 March 2018 | Daily | Continoius |
| | СО | 300 | 1 April 2015 to 31 March 2018 | Daily | Continuous |
| | SO ₂ | 70 | 1 April 2015 to 31 March 2018 | Daily | Continuous |
| WDE | NO _x expressed as NO₂ | 500 | 1 April 2015 to 31 March 2018 | Daily | Continuous |
| WRF | HCI | 12 | 1 April 2015 to 31 March 2018 | Daily | Continuous |
| | HF | 20 | 1 April 2015 to 31 March 2018 | Daily | Continuous |
| | Pb+As+Sb+Cr+Co+Cu+Mn+Ni+V | 1 | 1 April 2015 to 31 March 2018 | Daily | Continuous |
| | Hg | 0.5 | 1 April 2015 to 31 March 2018 | Daily | Continuous |
| | Cd+TI | 0.12 | 1 April 2015 to 31 March 2018 | Daily | Continuous |

| TOC | 10 | 1 April 2015 to 31 March 2018 | Daily | Continuous |
|------------------------------------|--|----------------------------------|-------|------------|
| NH₃ | 30 | 1 April 2015 | Daily | Continuous |
| Dioxins and furans (PCDD/PCDF) | 0.1 (ng I-TEQ/Nm³) under normal conditions of 10% O ₂ , 273K and 101.3kPa | 1 April 2015 | Daily | Continuous |

^{*}All minimum emission standards are expressed on a daily average basis, under normal conditions of 273 k, 101.3 KPa, 10% oxygen and dry gas

| Point Source Code | Pollutant Name | Maximum Release Rate | | | Duration of Emissions |
|-------------------|----------------|----------------------|------------------------------------|----------------|-----------------------|
| | | (mg/Nm³) | Date to be Achieved By | Average Period | |
| Category 2.4 | TVOC's | ŧ | * 1 April 2015 to 31 March 2020 | | Continuous |

^{*} The emission is to be incorporated into the side fugitive emission plan (progress on installations of flouting device

7.3 Point source – maximum emission rates (under start-up, maintenance and shut-down conditions)

| Point Source Code | Pollutant Name | Maximum (mg/Nm³) | Release Rate Date to be Achieved By | Averaging Period | Maximum Gas Volumetric Flow (m³/hr) | Maximum Gas Exit Velocity (m/s) | Emission Hours | Maximum Permitted Duration of Emissions |
|-------------------------|-------------------|---------------------|--------------------------------------|---------------------|---|---------------------------------------|-------------------|---|
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Within 48 hours after commissioning of plant or equipment |

Should normal start-up, maintenance, upset and shut-down conditions exceed a period of 48 hours, Section 30 of the National Environmental Management, 1998 (Act No. 107 of 1998), shall apply unless otherwise specified by the Licensing Authority.

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7.4 Point source – emission monitoring and reporting requirements

| Point Source code | Emission Sampling / Monitoring Method | The state of the s | Sampling Duration | Parameters to be Measured | Parameters to be Reported | Reporting Frequency | Conditions under which Monitoring could be Stopped |
|----------------------|---|--|--|--|--|--|---|
| B1 & B2 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazetle 22 November |
| GT1 >2 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazette 22 November |
| Rectisol East & West | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | Upon written instruction from AEL authorities |
| 01111,2,0,4,0 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | Upon written instruction from AEL authorities |

| Point Source code | Emission Sampling / Monitoring Method | Sampling Frequency | Sampling Duration | Parameters to be Measured | Parameters to be Reported | Reporting Frequency | Conditions under which Monitoring could be Stopped |
|------------------------------------|---|--|--|--|--|---|--|
| R1,2,3,4and 5 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting month. | Upon written instruction from AEL authorities |
| R6.7,8,9,10,11, 12,13,14 and 15 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | Upon writlen instruction from AEL authorities |
| R17,18,19,20,2 1,22 and 23 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | Upon written instruction from AEL authorities |
| R 24,25,and 26 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | Upon written instruction from AEL authorities |
| R 27,28 and 29 | In line with No. 37054 Government Gazetle 22 | In line with No. 37054 Government | In line with No. 37054 Government Gazette 22 November 2013 report | Upon writlen instruction from AEL authorities |

| Point Source code | Emission Sampling / Monitoring Method | Sampling Frequency | Sampling Duration | Parameters to be Measured | Parameters to be Reported | Reporting Frequency | Conditions under which Monitoring could be Stopped |
|---|---|--|--|--|--|---|---|
| WSA1 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazette 22 November |
| FFP 1,2,3,4 and 5 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazetle 22 November |
| CT1,2,3,4,5,6,7, 8,9,10,11,12,13 and 14 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazetle 22 November |
| WA 1,2,3 and 4 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazelle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazelle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazetle 22 November |
| HOW 1 & 2 | In line with No. 37054 Government Gazette 22 | In line with No. 37054 Government | In line with No. 37054 Government Gazette 22 November 2013 report | In line with No. 37054 Government |

| Point Source code | Emission Sampling / Monitoring Method | | Sampling Duration | Parameters to be Measured | Parameters to be Reported | Reporting Frequency | Conditions under which Monitoring could be Stopped |
|--------------------------------|---|--|--|--|--|---|---|
| | November 2013 | Gazelle 22 November 2013 | Gazelle 22 November 2013 | Gazelle 22 November 2013 | Gazette 22 November 2013 | before the 08th of every month for the previous reporting period. | |
| R30,31,32,33, 34 and 35 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | Upon written instruction from AEL authorities |
| R36,37,38,39, 40 and 41 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazelle 22 November 2013 | In line with No. 37054 Government Gazelle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazette 22 November |
| SCCI 1,2,3,4,5,6,7 and 8 | | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazelle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazette 22 November |
| | 37054 Government Gazette 22 November 2013 | | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazelle 22 November 2013 | In line with No. 37054 Government Gazelle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazette 22 November |

7.5 Area source – management and mltlgation measures

| Area and/or Line Source Code | Area and/or Line Source Description | Description of Specific Measures | Timeframe for Achieving Required Control Efficiency | Method of Monitoring Measures Effectiveness | Contingency Measures |
|--|---|--|--|--|--|
| CP1 | Coal stock pile | NEM: AQA 39 of 2004; National Dust Control Regulations. | 1 April 2015 | ASTM D1739 | In line with approved EMP, Dust Management Plan and Sasol Synfuels operational manuals |
| CP2 | Coal slock pile | NEM: AQA 39 of 2004; National Dust Control Regulations. | 1 April 2015 | ASTM D1739 | In line with approved EMP, Dust Management Plan and Sasol Synfuels operational manuals |
| Storage tanks (sub- category 2.4) | Storage tanks | A detail plan to manage VOC's and schedule for the retrofit for the tanks to be provided to the Deaprtment of Environmental Affairs. Emissions are to be incoporated into the the site fugitive emissions monitoring plan during this period | 01 April 2015 to 31 March 2020 | Quartley reports to Licensing Authority on imlementation of reftrofit schedule and against the submitted site fugitive emissions monitoring plan | In line with Sasol approved site fugitive emissions monitoring plan including the schedule for the retrofit as provided to the Authorities |
| Tar value chain phase 1 | Different sources in gas liquor separation, Coal Tar filtration, tar Distilation units and Feed preparation plant of varying nature | To be included in the site fugitive emissions monitoring plan | In line with Sasol approved site fugitive emissions monitoring plan including the schedule for the retrofit as provided to the Authorities | To be agreed between the licence holder and the licesing authority | In line with Sasol approved site fugitive emissions monitoring plan including the schedule for the retrofit as provided to the Authorities |

| Point Source code | Emission Sampling / Monitoring Method | Sampling Frequency | Sampling Duration | Parameters to be Measured | Parameters to be Reported | Reporting Frequency | Conditions under which Monitoring could be Stopped |
|-------------------|---|--|--|--|--|---|---|
| | November 2013 | Gazelle 22 November 2013 | Gazelle 22 November 2013 | Gazelle 22 November 2013 | Gazelle 22 November 2013 | before the 08th of every month for the previous reporting period. | Gazelle 22 November |
| SWI | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazelle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazette 22 November |
| WRF | In line wilh No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 report before the 08th of every month for the previous reporting period. | In line with No. 37054 Government Gazetle 22 November |
| Slorage Tanks | Quartely sampling till 02 April 2018 in line with section 7.6 | In line with No. 37054 Government Gazette 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazetle 22 November 2013 | In line with No. 37054 Government Gazette 22 November 2013 | The facility to report quartely till 01 April 2018 as per requirement in section 7.6 | Upon written instruction form Licesning Authority |

WA1 to be installed with online analyser by 01 April 2017 HOW2 to be installed with online analyser by 01 April 2017 B1 & B2 to be installed with online analyser by 01 December 2017

| Tar value chain phase 2 | Sysnfuels and refinery unit tanks 15TK 101/ 215TK101/ 39TK103/ 39TK104/ 39TK 105 | To be included in the site fugitive emissions monitoring plan | In line with Sasol approved site fugitive emissions monitoring plan including the schedule for the retrofit as provided to the Authorities | licence holder and the licesing authority | In line with Sasol approved site fugitive emissions monitoring plan including the schedule for the retrofit as provided to the Authorities |
|-------------------------------|--|---|--|---|--|
|-------------------------------|--|---|--|---|--|

7.6 Routine reporting and record-keeping

7.6.1 Complaints register

The licence holder must maintain a complaints register at its premises, and such register must be made available for inspections. The complaints register must include the following information on the complainant, namely, the name, physical address, telephone number, date and the time when the complaint was registered. The register should also provide space for noise, dust and offensive odours complaints.

Furthermore, the licence holder is to investigate and quartely, report to the licensing authority in a summarised format on the total number of complaints logged. The complaints must be reported in the following format with each component indicated as may be necessary:

- (a) Source code / name;
- (b) Root cause analysis;
- (c) Calculation of impacts / emissions associated with incidents and dispersion modelling of pollutants, where applicable;
- (d) Measures implemented or to be implemented to prevent recurrence; and
- (e) Date by which measure will be implemented.

The licensing authority must also be provided with a copy of the complaints register. The record of a complaint must be kept for at least 5 (five) years after the complaint was made.

7.6.2 Annual reporting

Annual reporting

The licence holder must complete and submit to the licensing authority an annual report after the facility annual financial year, the report must include information for the year under review (i.e. annual year end of the company). The report must be submitted to the licensing authority not later than sixty (60) days after the end of each reporting period. The annual report must include, amongst others the following:

- (a) NEM: AQA Section 21 pollutant emissions trend for listed activity;
- (b) External compliance audit report (s);
- (c) Major upgrades projects (i.e. abatement equipment or process equipment);
- (d) Greenhouse gas emissions annual report;
- (e) Action taken to address complains received;
- (f) Annual report on implementation of Highveld Priority Air Quality Management Plan and offset program / projects; and
- (g) Compliance status to statutory obligation (4.5) including any other issued authorisations.

The holder of the licence must keep a copy of the annual report for a period of at least 5 (five) years.

7.6.3. Investigation

| Investigation | Purpose | Completion Date | |
|--|--|---|--|
| VOC Management and monitoring | To investigate the management and monitoring of VOC's within Synfuels | 06 months after date of issue of Licence | |
| P1 and P2 Ammonia venting measurement and monitoring | To investigate the frequency and amount of ammonia venting in Synfuel | 06 months after date of issue of Licence | |
| All stacks excluding two main stack Monitoring program in line with section 21 requirements for monitoring | Point source emission compliance monitoring | 12 months after date of issue of Licence | |
| Sewerage Solids Incinerators | To dertemine the actual emission values | By 31 March 2018 | |
| WRF & WA 1-4 (Bio-sludge Incinerators) | To dertemine the actual emission values | By 31 March 2018 | |
| HOW 1&2 (incinerators) | To dertemine the actual emission values | By 31 March 2018 | |
| Phenosolvan stacks excluding two main staks (under TSP) emission measurements | To determine the emmissions | To report quarterly until 30 November 2018 | |
| All tanks falling under sub- category 2.4 | To dertemine VOC's emissions | To report quartely until 30 November 2018 | |
| Storage Tanks (sub-category 2.4) | To identify and mark all VOC's emitting points and monitoring of points emitting VOC's | To report quartely until 30 November 2018 | |

8 DISPOSAL OF WASTE AND EFFLUENT ARISING FROM ABATEMENT EQUIPMENT CONTROL TECHNOLOGY

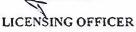
| Source Code / Name | Waste / Effluent Type | Hazardous Components Present | Method of Disposal | | |
|-----------------------|-------------------------------------|---|--|--|--|
| B1 & B2 | Ash | Alkaline dust containing heavy metal trace elements, as well as silica and quartz | In line with the requirements of NEMA and the SEMA | | |
| CM1, CM3 & CM5 | Catalyst Dust | Magnetite | In line with the requirements of NEMA and the SEMA | | |
| WA1, WA2, WA3, WA4 | Ash | Heavy metal trace elements | In line with the requirements of NEMA and the SEMA | | |
| WSA1 | Weak sulphuric acid, spent catalyst | Sulphuric acid, vanadium based catalyst | In line with the requirements of NEMA and the SEMA | | |

PENALTIES FOR NON-COMPLIANCE WITH LICENCE AND STATUTORY CONDITIONS AND OR REQUIREMENTS

Failure to comply with the any of the above condition and requirements in terms of Chapter 7 Section 51 including Chapter 8Section 53 - 55 of NEMAQA (Act no. 39 of 2004 is a breach of the Licence conditions, and the Licence holder will be subject to the sanctions set out in Chapter 7 Section 52 of NEMAQA (Act no. 39 of 2004), Chapter 10, Section 89 of the National Health Act 61 of 2003, Chapter 7 Section 28,32,33 and 34 of the National Environmental Management Act 108 of 1998, Chapter 16, section 151 of the National Water Act, and Chapter 7 Section 68 of the National Waste Management Act, including any penalties contained in the By-laws.

10. APPEAL OF LICENCE

- 10.1 The Licence Holder must notify every registered interested and affected party, in writing and within ten (10) days, of receiving the District's decision.
- 10.2 The notification referred to in 10.1. must -
- 10.2.1 Inform the registered interested and affected parties of the appeal procedure provided for in Chapter 7 Part 3 Section 62 of Municipal Systems Act (Act 32 of 2000), as amended;
- 10.2.2 Advise the interested and affected parties that a copy of the Atmospheric Emission Licence and reasons for the decision will be furnished on request;



10.2.3 An appeal against the decision must be lodged in terms of Chapter 7 Part 3 Section 62 of Municipal Systems Act (Act 32 of 2000), from the date of issue of this Atmospheric Emission Licence, with:

Municipal Manager, PO Box 1748, Emelo 2350

Fax No. 017-811 1207;

and

10.3. Specify the date on which the Atmospheri Emission Licence was issued.

11. REVIEW OF ATMOSPHERIC EMISSION LICENCE

In terms of -chapter 5 (44) (45) (46) (47) NEMAQA (Act No. 39 of 2004), Atmospheric Emission Licence is valid for 5 years from date of first issue of theAtmospheric Emission Licence. The licence will be reviewed within five (05) years from date of issue, after which it will or will not be amended.